

**Statement of**

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**before the**

**Senate Subcommittee on Federal Financial Management, Government Information,  
Federal Services and International Security  
Committee on Homeland Security and Governmental Affairs  
United States Senate**

Good afternoon, Chairman Carper, Dr. Coburn, and Members of the Subcommittee. Thank you for inviting me here today to discuss NASA's use of performance information in its management and decision-making.

I am NASA's Associate Administrator for Program Analysis and Evaluation. The NASA Administrator holds my office accountable for providing objective studies and analysis in support of Agency policy, program, and budget decisions. In particular, the Office of Program Analysis and Evaluation is directly responsible for the planning and programming portion of NASA's planning, programming, budgeting, and execution process. More relevant to today's hearing, I am also the Agency's Program Improvement Officer under Executive Order 13450, and the lead for various Program Improvement Initiatives under the President's Management Agenda. Thus, I have been able to observe the full spectrum of NASA's activities, its performance, where we have excelled, and where we can improve.

From this vantage point, I would like to share some observations on why NASA receives generally good marks on performance, and continues to receive strong bipartisan support from Congress – for which we are very appreciative. NASA is fortunate in being charged by the Administration and Congress with missions well suited to performance management – and having a performance-oriented culture that values “mission success” as a central tenet. Through hard experiences, both good and bad, NASA has sought to put the right tools and governance processes in place to ensure better accountability, transparency and oversight. It is through the *process* of meeting these requirements that NASA helps *ensure* mission success. In short, processes are not ends in themselves, but means for accomplishing the missions assigned to us by the Administration and Congress.

In NASA's experience, the best tools for creating accountability and transparency are those that provide consistent external reporting requirements, and provide flexibility in the design of internal measurement techniques tailored to our unique missions. Consistent external reporting helps focus the Agency on the most important metrics, and flexibility helps to avoid the trap of imposing simple “one size fits all” performance answers that can mask more than they reveal. While NASA's system

is generally working well, we are not without challenges, and need the support of Congress in maintaining our commitment to the efficient and effective execution of Agency missions.

As I mentioned earlier, one of our advantages is that NASA has a deeply rooted performance culture. It is embedded in the nature of our mission, and the need for mission success. Every mission we fly is unique. Space is unforgiving, and the right events must happen at every step of the journey to achieve mission success. Having good metrics allows us to track our performance to plans and, more importantly, to make the correct decisions. The consequences of mission failure are severe, and in the worst case, can include loss of life. Programmatic failures – cost and schedule – are similarly critical, as they consume resources entrusted to us that could have been used for other public purposes. For all these reasons, the need for performance management has been long internalized at all levels in NASA, by engineers, managers, and institutional support personnel, all of whom must work together to make our missions succeed.

Second, the nature of NASA's mission is well suited for effective performance management. Our mission is very concrete, and our goals readily flow down to every level of the Agency: fly each Space Shuttle mission safely until retirement; complete the International Space Station; launch scientific missions; conduct groundbreaking scientific and aeronautics research; develop the next generation launch vehicles, that will return us to the moon, Mars and beyond. Performance against concrete goals is measurable, traceable – and thus actionable. Our budget is aligned to our goals. We have well-established program and project management policies, driven by the need to deliver a wide portfolio of missions, of many sizes, and to many destinations. Our programs are typically milestone-driven, and we often face “hard deadlines,” such as planetary launch window constraints. Our schedules are complex and must be integrated; many organizations must come together successfully to fly each mission. As an Agency, we are comparatively small and compact, and key, strategic, *informed* conversations can still be held at the highest levels of the Agency (while delegating as many decisions as possible to the lowest possible levels).

NASA's performance management system rests on two foundations: good data, and good governance. Data that are not coupled with decision-making are just that: numbers. Getting the right data at the right time to the right decision-makers is a perennial management challenge. Since the loss of *Columbia*, we have invested heavily, not only in improving the quality and timeliness of performance data, but also in establishing a disciplined governance process up and down the management chain. At the top of the Agency, three governance councils -- the Strategic Management Council, Program Management Council and Operations Management Council -- have specific oversight responsibility on three dimensions of performance: our strategic performance, our program execution performance, and our institutional performance. In addition, a Baseline Performance Review provides a monthly assessment to senior management of both program execution and the institutional elements supporting execution. Lines of accountability are clear, and open discussion, informed by data, is the norm. Agency leadership understands that performance measurement is a management tool that can be used to drive “good” behaviors, and routinely uses that tool to effect change through questioning, debate, and continual attention. We are also mindful of the time and “transaction costs” associated with collecting performance data, and strive to eliminate internal redundancies whenever possible, to ask only for data that is required for decision-making, and to match the reporting requirements to the mission size and risk.

We are currently focused on aligning all of our external reporting to a single set of external measures. We are currently linking internal performance indicators directly to these external measures and commitments, e.g., Government Performance and Results Act (GPRA) and Program Assessment

Rating Tool (PART) metrics. It is perhaps not surprising, given our Agency's strong mission focus, that a key challenge has been to develop a framework for assessing our institutional performance as rigorously as our mission performance. This is not to say that our institutional performance is poor – we could not achieve our current mission success rate if it were – but rather that we are less practiced at defining and measuring level-of-service and institutional efficiency type performance.

I could describe our process in much greater detail, but the real demonstration of performance management is in mission success. We currently have 56 robotic science spacecraft operating throughout – and beyond – the solar system. We continue to conduct groundbreaking scientific and aeronautics research. The International Space Station is nearing completion, with seven assembly flights remaining and two contingency logistics flights, which will be flown if they can be safely accomplished before Shuttle retirement in FY 2010. We are also looking toward a final Space Shuttle mission to repair the Hubble Space Telescope this October.

I cannot overemphasize the importance of our Return to Flight efforts following the loss of *Columbia*, both as a technical and a management achievement. This process exercised NASA's new governance – and performance management – system to its fullest, both in the nature and quality of the discussions held and decisions made, and the complexity of the challenge. We learned that a mission-driven organization needs a “checks and balances” organizational model that creates the appropriate level of management tension for the successful execution of high-risk endeavors. It is important for engineering to maintain technical purview over requirements and any deviations independent of the program, and for Safety and Mission Assurance to independently assess the acceptability of any residual risk. Likewise, verification compliance is the responsibility of both Engineering and Safety and Mission Assurance. The NASA Chief Engineer joined the NASA Chief, Safety and Mission Assurance, as mandatory voting members, in the Shuttle Flight Readiness Review. Any dissenting position by the NASA Chief Engineer or the NASA Chief, Safety and Mission Assurance is appealed to, and can only be overturned by, the NASA Administrator. Each Chief also has representatives as mandatory voting members on all program-level decisions, with the commensurate appeal process in place to elevate disagreements to higher levels of NASA management as they may arise.

The success of a performance management system can also be found in crises averted. I can think of two recent cases in our science portfolio, Stratospheric Observatory For Infrared Astronomy (SOFIA) and Kepler, in which complex, risky development projects found themselves in great difficulty. The issues were monitored in our performance management system, the data presented, and decisions worked their way up to ultimately be made by the highest levels of Agency management. In both cases, projects were put on notice, corrective action plans developed, and the projects placed back “on track.” The related management decisions were real, and substantive, and included engagement at high levels with university, international and contractor partners, reorganization of work and work agreements, and risk mitigation. This is how a performance management system *should* work, by triggering decisions, and actions and not struggling to understand what was happening.

In the risky business of space development, we will continue to face challenges. Nine projects have breached cost and/or schedule thresholds in FY 2008 against performance baselines that NASA has

established with the Congress for Major Program Annual Reports.<sup>1</sup> We are continuing an aggressive effort to improve the fidelity in our “up-front” estimates of life cycle costs to Congress, applying more rigor than at any other time in the Agency to develop accurate estimates and models for our programs and projects. There are many sources of cost and schedule growth – some of them within the Agency’s control and some not. For example, for three of the major projects cited above, the NASA development is on plan, but is missing cost or schedule thresholds due to late delivery of a spacecraft by an international partner or late delivery of a key instrument by a partner agency. We should always be pioneering new technologies and pushing what is possible, but we also need to set realistic expectations as to the associated costs and risks. This is critical to our credibility, but more importantly, critical to ensure that we can use our limited resources to achieve all of the missions we’re asked to do.

NASA has received new cost and schedule tracking and reporting requirements from both the Congress and the Office of Management and Budget (OMB) for the purpose of improving transparency and accountability associated with the Agency’s performance. The Congressional reporting requirements are principally in Section 103(b) of the NASA Authorization Act of 2005 (P.L. 109-155), which required Major Program Annual Reports (MPAR), and Section 530 of the FY 2008 Omnibus Appropriations Act (P.L. 110-161). The OMB requirements are principally in the implementation instructions for the National Space Policy Directive.

NASA has related requirements from the White House Performance Improvement Initiative (PII) Scorecard, the Program Assessment Rating Tool (PART) reviews of the Agency’s programs, and the NASA Annual Performance Plan. In addition, the Government Accountability Office (GAO) has expressed concerns about the ability of NASA to manage project cost and schedule in multiple reports, and, more specifically, the management of contract costs in their recent High Risk Series. As a result, NASA is endeavoring to establish a single reporting process to serve both internal and external reporting needs, with controlled frequency of updates, and common data and formats.

NASA accepts the need to improve performance and transparency. What we need most is flexibility in defining how to customize the *system* of accountability to our unique, and diverse, mission portfolio, which includes not only launch vehicle and spacecraft developments, but basic research, space operations, and underlying institutional performance across our Centers. To this end, when it comes to external reporting requirements, “simpler is better,” with greater consolidation in general a good thing.

The issue of reporting complexity is also a significant one. If a project is in trouble, it is in trouble. However, under current reporting requirements from multiple stakeholders charged with oversight, a variety of trigger types and thresholds can exist, including life cycle cost, development cost, schedule growth and key milestone slips. For example, OMB expects NASA to keep project cost growth at less than 10 percent of baseline life cycle cost. Both OMB and Congress require NASA to report growth of more than 15 percent of development cost (a portion of the lifecycle cost). NASA also has a 6-month trigger from Congress on key milestones; OMB expects NASA to keep project schedule growth at less than 10 percent of baseline life cycle schedule. Greater consolidation of how such “breaches” are defined, and the greater consolidation of requirements for what is “in” or “out” of reporting, would reduce Agency reporting transactional costs significantly, and help ensure that Agency attention and effort is focused on mitigating the most significant project performance issues.

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<sup>1</sup> List of breached projects to be added.<sup>1</sup> These missions are: Glory, Kepler, Mars Science Laboratory (MSL), NPOESS Preparatory Project, Orbiting Carbon Observatory (OCO), Stratospheric Observatory for Infrared Astronomy (SOFIA), Aquarius, Gamma-ray Large Area Space Telescope (GLAST) and Herschel.

Perhaps most importantly, NASA benefits from stable, predictable funding that allows us to make the most efficient long-term plans for our programs and institutions. This helps alleviate the transaction costs and burden of reporting, freeing resources to focus internally on the ultimate goals of performance management: informed decisions, efficient program execution, and mission success.

Thank you for your time this afternoon and I would be pleased to answer any questions you might have.